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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/920,927	08/03/2001	Shinichiroh Ikemasu	970607A	9951

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ARMSTRONG, WESTERMAN, HATTORI,
MCLELAND & NAUGHTON, LLP
1725 K STREET, NW, SUITE 1000
WASHINGTON, DC 20006

EXAMINER

WEISS, HOWARD

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 12/28/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/920,927		Applicant(s) IKEMASU ET AL.	
	Examiner Howard Weiss		Art Unit 2814	

-- Th MAILING DATE of this communication app ars on the cover sh et with the correspondenc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/3/01.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 62-79 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 and 62-79 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 08/876,908.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4</u> . | 6) <input type="checkbox"/> Other: _____ |

Attorney's Docket Number: 970607A

Filing Date: 8/3/01

Continuing Data: Division of 08/876,908 (6/16/97)

Claimed Foreign Priority Date: 7/18/96 (JPX)

Applicant(s): Ikemasu et al. (Okawa)

Examiner: Howard Weiss

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 08/876,908, filed on 6/16/97.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Line A-A' as mentioned on Page 20 Lines 1 and 2 of the Specification. Correction is required.

Specification

3. The disclosure is objected to because of the following informalities: On Page 20 Line 21, after "1995" insert ---now U.S. Patent No. 5,780,907---. Appropriate correction is required.
4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

5. The claims are objected to because they lack a proper introduction. The present Office practice is to insist that each claim must be the object of a sentence starting with "I (or we) claim", "The invention claimed is" or the equivalent. Please see MPEP § 608.01(m).

6. In Claims 66 and 67, ---a--- should be inserted between "of" and "dynamic" in Line 2 of each claim.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1 to 19 and 62 to 79 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
9. Claims 1 and 3 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: a second insulating film in Lines 3 and 4 of each claim. There is no antecedent basis for the third insulating film after the first.
10. Claims 2, 4, 5, 7, 13, 63, 66, 67 and 73 recite the limitation "said conductive pattern." There is insufficient antecedent basis for this limitation in the claims.
11. Claim 8 defines "a third insulting film having etching characteristics different from silicon nitride." However, "a third insulating made of silicon nitride" had been defined in the independent Claim 1 from which Claim 8 depends and, therefore, raises conflicts making the claimed invention unclear.
12. Claim 9 recites the limitation "the surface of said third insulating film" in Line 2. It is unclear which "third insulating film" is being referred to in the claim.

13. Claims 18 and 19 recite the limitation "said storage capacitor." There is insufficient antecedent basis for this limitation in the claims.

14. Claim 19 recites the limitation "said silicon nitride layer" without specify which of the silicon nitride layers covering which of wiring patterns is being referred to.

15. Claim 70 recites the limitation "the contact area" in Line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

17. Claims 1 to 13, 16, 17, 62 to 65 and 68 to 73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashide in view of Meguro et al.

Hayashide shows most aspects of the instant invention (e.g. Figure 1) including:

- a semiconductor substrate 1 having an uppermost insulating film 3

- a lamination of a first conductive film **4** of tungsten silicide, a first insulating film **5**, a third insulating film **9** of silicon nitride or **8** not of silicon nitride said lamination being a gate of a MIS transistor
- second insulating films **7** formed on the sidewalls of the lamination and made of silicon dioxide
- fourth insulating films **10** contiguous with the third insulating film and covering said first film
- an interlevel insulating film **12** with an aperture formed through said interlevel film and filled with a second conductive film **14** and being parallel to said substrate surface
- a fifth insulating film **18**, an upper conductive pattern **25** and a sixth insulating film **28** covering the sidewalls of said upper conductive pattern and a seventh insulating film (thin layer above **28**) made of silicon nitride
- a field insulating film **2** with a wiring pattern **4** formed on the field insulating film and covered by a film of silicon nitride **9**

Hayashide does not show the second insulating film having a thickness smaller than the first, the first insulating film covering the sidewalls and top of the first conductive film extending under the bottom of said second insulating film and the second insulating film defining said aperture. Meguro et al. teaches (e.g. Figure 1(B)) to form a first insulating film **6** under the bottom of a second or fourth insulating films **8A,B** and defining an aperture **9** to improve the strength of the electrodes with respect to external forces (Column 2 Lines 53 to 57). It would have been obvious to a person of ordinary skill in the art at the time of invention to form a first insulating film under the bottom of a second or fourth insulating films and defining an aperture as taught by Meguro et al. in the device of Hayashide to improve the strength of the electrodes with respect to external forces.

18. Claims 14, 15, 18, 19, 66, 67 and 74 o 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashide in view of Meguro et al., as applied to Claims 1 and 3 above, and further in view of Lee et al.

Hayashide in view of Meguro et al. show most aspects of the instant invention (Paragraph 17) except for the configuration being part of a Dram with a capacitor as claimed. Lee et al. teach (e.g. Figure 1) that is common, and therefore obvious, to have a DRAM with a capacitor as claimed in a mutli-layered circuit as taught by Hayashide in view of Meguro et al. (see Abstract).

Conclusion

19. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. Papers should be faxed to Art Unit 2814 via the Art Unit 2814 Fax Center located in Crystal Plaza 4, room 3C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(703) 308-7722** or **-7724**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications.
20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard Weiss at **(703) 308-4840** and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via **Howard.Weiss@uspto.gov**.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group 2800 Receptionist at **(703) 308-0956**.

21. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/306, 758	12/19/01
Other Documentation: PLUS Analysis Report	12/10/01
Electronic Database(s): EAST, IEL	12/19/01

Howard Weiss
Patent Examiner
Art Unit 2814

HW/hw
21 December 2001